MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2018/2019

HAP1011 – HUMAN ANATOMY AND PHYSIOLOGY

(All section / Groups)

13 OCTOBER 2018
2:30 p.m – 4:30 p.m
(2 Hours)

INSTRUCTIONS TO STUDENTS

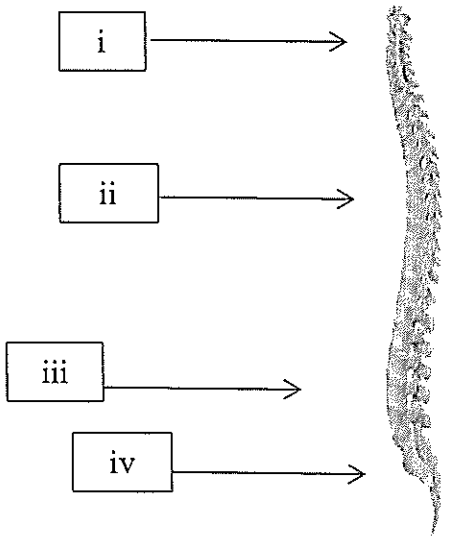
1. This Question paper consists of **5 pages** with **5 Questions** only.
2. Attempt **ALL FIVE** questions. All questions carry equal marks and the distribution of the marks for each question is given.
3. Please print all your answers in the Answer Booklet provided.

Answer ALL questions [50 marks, 10 marks each]

Question 1

a) Define Homeostasis and name FOUR variables that are maintained by the homeostasis process. **[3 marks]**

b) The spinal cord is located in the vertebral foramen and is made up of 31 segments. Label FOUR major group of the segments in the diagram below and name the membrane that protects the spinal cord? **[3 marks]**



[2 marks]

c) Explain why the human nervous system (including the brain) is considered an information-processing system. Identify TWO parts of the nervous system that perform the function as information-processing system. Explain the process briefly. **[3 marks]**

d) Billions of consumer dollars are spent for deodorants and antiperspirants each year. Explain the production of body odors that is frequently associated with axillary skin. **[1 mark]**

Continued...

Question 2

a) Briefly explain how your eyes adjust to light and darkness. **[3 marks]**

b) List and describe at least THREE characteristics of muscle tissue which allow it to function.

[3 marks]

c) Which part of the organ play a role in balancing the ballet dancer body as illustrated in picture below?

[1 mark]

d) Briefly explain how the visual system affects balance. **[3 marks]**

Question 3

a) Define the terms *end diastolic volume* (EDV) and *end systolic volume* (ESV).

[2 marks]

b) Smoking (tobacco) has several effects. What tissue(s) is/are damaged by smoking? What is the effect of smoking on blood pressure and how does this happen? Why are pregnant women told not to smoke? **[3 marks]**

c) A patient arrives at the emergency room in an unconscious condition. A medical emergency bracelet reveals that he has diabetes. How can you tell if his condition is due to diabetes coma? **[1 mark]**

d) Why do many chemical signals that bind to intracellular receptors take longer to show their response than chemical signals that bind to membrane-bound receptors?

[1 mark]

e) Why should the hypothalamus instead of the adenohypophysis be called the "master endocrine gland"? **[1 mark]**

f) What is the difference between autocrines and paracrines? **[2 marks]**

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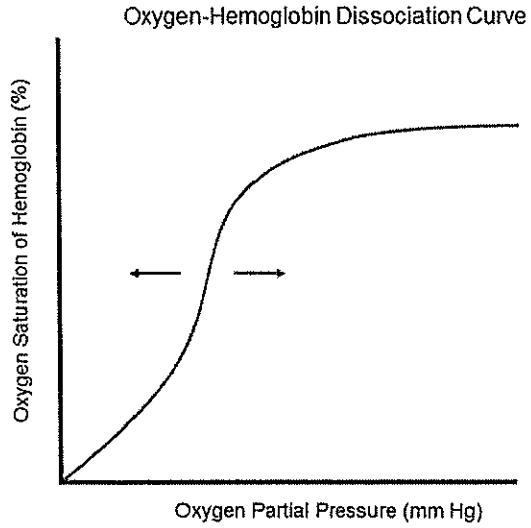
Question 4

a) Describe briefly Haldane effect. **[1 mark]**

b) Which direction does the oxygen-hemoglobin dissociation curve shift during hiking at high elevation? Explain your answer briefly. **[1 mark]**



c) Describe the changes of diaphragm, rib cage, thoracic cavity volume and alveolar pressure during inspiration. **[1 mark]**

d) Many factors such as a sudden change in air pressure, injury to the chest area may cause lung to collapse. Name TWO factors that may prevent the lung to collapse. **[1 mark]**

e) Describe briefly the physiological importance of the fact that the male testes descend to reside in the scrotal sac? **[2 marks]**

f) Explain briefly the function of the endometrium. **[1 mark]**

g) How does sperm production differ from production of the ovum? **[1 mark]**

h) What is the name given to the female homologue to the penis? Explain your answer briefly. **[1 mark]**

i) Why might sexual dysfunction arise in men taking drugs that inhibit nervous system activity as part of the treatment for high blood pressure? **[1 mark]**

Continued...

Question 5

a) What is the structural and functional unit of kidney? **[0.5 mark]**

b) What is the network of capillaries that is located in Bowman's capsule? **[0.5 mark]**

c) Urinary tract infection (UTI) affects mostly the bladder and the urethra. Why are women more prone to UTI than men? **[1 mark]**

d) How do renin and aldosterone help to control blood pressure when blood pressure is low? **[2 marks]**

e) What is heartburn? Give ONE cause of heartburn. **[1 mark]**

f) What is the main difference between bolus and chyme? **[2 marks]**

g) Describe FOUR functions of the spleen. **[2 marks]**

h) What is antigen challenge, and where does it usually take place? **[1 mark]**

End of Paper